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An Abstract of a Letter from Mr. J. Flamsteed, Math. Reg. & F. of the R. S. giving an account of the Eclipses of & Satellits, anno 1686; and containing a Table of the Parallaxes of & Orb, and an Ephemeris of & Geocentric Places for the same year.

Sir,

Give you here the Eclipses of Jupiters Satellits for the next year 1686, deduced from the same numbers by which I calculated those of the years 1684, and 1685, printed in the Transactions. I shall not need to fhew here again, how to find within what limits on our Earth any of them, not visible with us, will be obfervable; having done it already both in English and Latin in those Tracts; I shall therefore only tell you that all my observations of them since made, (which have not been many by reason of our much cloudy weather and my frequent avocations,) have fully made good my affertions concerning them, and that I have not found my numbers at any time fince to err above one minute in the Ecliples of the first or innermost Satellit; fo that if a way were found of managing a Tube of 8, 10, or 12 foot long at Sea, and Observing the time as exactly as we can at land, Observations of these Eclipses would certainly give us the difference of Longitude, as exactly as the Latitudes are pretended to be Observed by our more knowing Sea-Men, and certainly much better then the Observations of Lunar Eclip(es. How the differences of Longitude are gained by them, you will see by the following Examples, the latter of which I have purposely produced to shew the good agreement of my numbers with the heavens.

Anno 1680, October 23, old Stile, Signior Foseph Ponthia, and Marco Antonio Cellio with a Telescope of 25 Palms long, Observed the total Immersion of the first Satellit into Is shadow at Rome at 10h. 07'. 53". p. m, which in our Observatory here I noted at 9. 15. 41, whose difference is the difference of our Meridians = 52'-12", or 13°. 0'3.

Again, January the 28 1685, Signior Francis Blanchini, having received my Catalogue of the Eclipses of the Satellits for that year, observed the total Immersion of the 1st at Rome, at 11h. 19\frac{13}{4} which I saw not here, but my numbers give at 10. 27\frac{1}{4}.

Therefore the difference of Meridians is 0 52\frac{1}{2}; and Rome lies so much more Easterly then the Observatory at Greenwich, agreeing with the former observation, and shewing the error of the Tables to be insensible.

The noble Tycho judged therefore not much amis, when he placed Uraniburg and Rome under the same Meridian; for by severall observations of Satellit Eclipses, it is evident, that the difference of Meridians betwixt Uraniburg and our Observatory is 51'. 10". of time, so that Rome lies only one minute of time or \frac{1}{4} of a de-

gree to the East of Vraniburg.

Some Ingenuous persons having often wished that such Tables of the Satellits motions were published, as might serve to find their appearences at any given time, tho I think it not fit (by reason they are capable of much Correction and great improvement) to publish mine at present: yet for the sake of the diligent observer, I have contrived a small Instrument, whereby with the sole help of the following Catalogue, and the Table of the Parallanes of 4s orb, their distances from the Axis of 4s may be found to any given time within the compass of the next year, and for any suture year by the like Tables.

[1217]

To make the Catalogue of Eclipses, as also the Table of the Parallaxes of \$\mathbb{Z}\$, it was necessary first to make a Table of \$\mathbb{Z}^s\$ Heliocentrick places, to which the Parallaxes being applied, give the Geocentrick. The vulgar Ephemerides are very faulty in this Planet, and no good one being extant this year, I here give you a copy of mine deduced from my own corrected Tables, which I am perswaded will be of good use and very acceptable to the Ingenuous Student of A-stronomy.

[1218]
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